

LESSON PLAN

Unit 16. HAZMAT/OPERATIONAL RISK MANAGEMENT

X-XXX-XXX2 Rev B

Topic 16.1 Hazmat

CLASS PERIODS: 2

LAB PERIODS: 0

Enabling Objectives:

- 13.1 **IDENTIFY** Hazmat in accordance with Hazardous Material Control and Management, OPNAVINST 4110.2
- 13.2 **IDENTIFY** the purpose of a Material Safety Data Sheet (MSDS) in accordance with Hazardous Material Control and Management, OPNAVINST 4110.2
- 13.3 **IDENTIFY** proper Stowage/Disposal/Handling of Hazmat in accordance with Hazardous Material Control and Management, OPNAVINST 4110.2

Trainee Preparation Materials:

A. Trainee Support Materials:

- 1. None

B. Reference Publications:

- 1. None

Instructor Preparation:

A. Review Assigned Trainee Material

B. Reference Publications:

- 1. Hazardous Material Control and Management, OPNAVINST 4110.2
- 2. Hazardous Material User Guide (HMUG), OPNAV Pub P-45-11-91

C. Training Materials Required:

- 1. Transparencies
 - a. Compatibility Information, 16-1-7
 - b. Control Measures Information, 16-1-8
 - c. Disposal Guidelines Information, 16-1-12
 - d. Hazardous Material (HAZMAT), 16-1-1
 - e. Hazardous Material Labeling, 16-1-5
 - f. Hazardous Material User's Guide (HMUG) Front Cover, 16-1-6
 - g. HAZMAT Subcategories, 16-1-2
 - h. Health Hazards Information, 16-1-10
 - i. Material Safety Data Sheet, Page 1, 16-1-3
 - j. Material Safety Data Sheet, Page 2, 16-1-4
 - k. Precautions Information, 16-1-9
 - l. Spill Control Information, 16-1-11

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- m. Summary, 16-1-13

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DISCUSSION POINT

1. Introduction

RELATED INSTRUCTOR ACTIVITY

1. Establish Contact.

Write name on VAP board.

Introduce Yourself.

During the day-to-day operations on ship or ashore, Sailors use many materials and products that are hazardous to us, our shipmates, and the environment. In addition, many of the tasks assigned to you will be hazardous in nature. Proper control of HAZMAT will ensure the safety of you, your command, and the environment.

State Lesson Objectives.

Reference Hazardous Material Control and Management, OPNAVINST 4110.2.

2. Presentation

a. Hazardous Material (HAZMAT)

a. Show Transparency 16-1-1, Hazardous Material (HAZMAT).

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DISCUSSION POINT

- (1) Definition - Any material that, because of its quantity, concentration, or physical or chemical characteristics, may pose a substantial hazard to human health or the environment when incorrectly used, purposefully released, or accidentally spilled.

RELATED INSTRUCTOR ACTIVITY

- (2) Six subcategories:
 - (a) Flammable/Combustible Materials
 - (b) Toxic Materials
 - (c) Corrosive Materials
 - (d) Oxidizers
 - (e) Aerosols
- (2) Show Transparency 16-1-2, HAZMAT Subcategories.

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DISCUSSION POINT

(f) Compressed Gases

3. Material Safety Data Sheets (MSDS)

- a. Technical bulletins which contains information about hazardous materials:

(1) Composition

(2) Chemical and physical characteristics

(3) Health and safety hazards

- b. Designed for shipboard and shore-base use

- c. Contains information such as:

RELATED INSTRUCTOR ACTIVITY

- 3. Show Transparency 16-1-3, Material Safety Data Sheet, Page 1.

- a. NOTE: Anytime hazard materials will be used, the MSDS must be read and adhered to.

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DISCUSSION POINT

RELATED INSTRUCTOR ACTIVITY

(1) General information

(a) Manufacturers name, address, and phone number

(b) Date the MSDS was prepared

(c) Weight and size

(2) Ingredients/Identity information

(3) Physical/Chemical characteristics

(4) Fire and Explosive hazards data

(5) Reactivity and Health hazard data

(5) Show Transparency 16-1-4, Material Safety Data Sheet, Page 2.

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DISCUSSION POINT

RELATED INSTRUCTOR ACTIVITY

(6) Safe handling precautions

(7) Spill response equipment

(8) Control measures including required Personal Protective Equipment (PPE)

4. Proper Stowage/Disposal/Handling

a. Hazardous Material Labeling

a. Show Transparency 16-1-5, Hazardous Material Labeling.

(1) System created by the National Fire Protection Association that assigns hazard ratings to materials

(2) Ratings are used for guidance in handling and storing hazardous materials

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RELATED INSTRUCTOR ACTIVITY

(3) Identifies HAZMAT in four categories:

(a) Health

- 1) The left diamond with a blue background
- 2) Indicates whether the material may cause permanent or temporary injury due to acute exposure by physical contact, inhalation, or ingestion

(b) Fire

- 1) The top diamond with a red background
- 2) Indicates the material's relative susceptibility to fire burst based on the form or condition of the material and its surrounding environment

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RELATED INSTRUCTOR ACTIVITY

(c) Reactivity

- 1) The right diamond with the yellow background
- 2) Shows the material's susceptibility to explosion through self-reaction or exposure to certain conditions or substances

(d) Specific Hazard

- 1) The bottom diamond with the white background
- 2) Specifies special properties and hazards associated with the material

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DISCUSSION POINT

- (4) Uses a diamond with a number to indicate order of severity from 0 (no specific hazard) to 4 (severe hazard).
- b. Hazardous Material User's Guide (HMUG)
 - (1) Purpose:
 - (a) Developed to provide the deckplate Sailor with safety data on hazardous materials commonly used on ships
 - (b) Used to reduce the risk of injury and long-term health effects
 - (c) Supplements the information contained in Material Safety Data Sheets (MSDSs)

RELATED INSTRUCTOR ACTIVITY

- b. Show Transparency 16-1-6, Hazardous Material User's Guide (HMUG) Front Cover.
 - (1) Reference Hazardous Material User Guide (HMUG), OPNAV Pub P-45-11-91.

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DISCUSSION POINT

- (d) Used to clarify any information not understood in the MSDS
- (2) Provides storage, handling, and disposal procedures for twenty-two hazardous material groups by their:
 - (a) Compatibility Information
 - 1) Lists example material classes that are not compatible with the hazardous material group
 - 2) List the types of reactions that could occur if incompatible materials mix
 - (b) Control Measures - identify and prescribe Personal Protective Equipment (PPE) which is appropriate for the chemical hazards in the group.

RELATED INSTRUCTOR ACTIVITY

- (a) Show Transparency 16-1-7, Compatibility Information.
- (b) Show Transparency 16-1-8, Control Measures Information.

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DISCUSSION POINT

- 1) The PPE symbols are intended to increase the users awareness of the need to wear protective equipment
- 2) A picture of the PPE is shown beside the written guidance
- (c) Precautions - gives safety guidance for using and storing hazardous materials in a group.
- (d) Health Hazards
- 1) Points out common signs and effects of overexposure to the hazardous material
- 2) Provides "What to do" instructions for the hazardous material user

RELATED INSTRUCTOR ACTIVITY

- (c) Show Transparency 16-1-9, Precautions Information.
- (d) Show Transparency 16-1-10, Health Hazards Information.

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DISCUSSION POINT

- (e) Spill Control - provides information for responding to a spill.
 - (f) Disposal Guidelines - gives acceptable methods for disposing of materials within a group.
- (3) The HMUG does not include items such as:
- (a) Ammunition
 - (b) Explosives
 - (c) Propellants
 - (d) Medical/Pharmaceutical supplies
 - (e) Radioactive materials

RELATED INSTRUCTOR ACTIVITY

- (e) Show Transparency 16-1-11, Spill Control Information.
- (f) Show Transparency 16-1-12, Disposal Guidelines Information.

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DISCUSSION POINT

5. Summary

a. Hazardous Material (HAZMAT)

b. Material Safety Data Sheets (MSDS)

c. Proper Stowage/Disposal/Handling

(1) Hazardous Material User's Guide (HMUG)

(2) Storage, handling, and disposal

6. Assignment

a. None

7. Evaluation

RELATED INSTRUCTOR ACTIVITY

5. Show Transparency 16-1-13, Summary.

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RELATED INSTRUCTOR ACTIVITY

- a. None